

## SERVICE FOR STUDENTS

At the University of Paderborn, we conduct internationally recognized, cutting-edge research. This is your chance! We'll prepare you for challenging positions where you will take responsibility.

1. "Try before you buy": during the pupils' practicum for prospective engineers, you can test out both us and yourself to see if it's a good fit.
2. Female students are welcome! The University of Paderborn has set a goal of increasing the number of female students in the engineering disciplines further.
3. Thanks to our Germany-wide (and international!) system "eduroam", students from the University of Paderborn can use the internet for surfing or research for free on campus in Paderborn, at any major German university, or any participating university in the world.
4. The student representatives (German: Fachschaft) are available to support you in any issue with both advice and assistance.

5. The UPB cooperates with universities in many countries around the world. Through these cooperations, students have a variety of options for spending a semester or a year studying abroad.
6. In addition, departments and working groups offer interesting, course-related excursions and visits to interesting companies.
7. Continuous cooperation and collaboration with companies also provides students with opportunities for practica and internships.



[mb.uni-paderborn.de/ciw](http://mb.uni-paderborn.de/ciw)



## CONTACT

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Current information about application and registration can be found at: [www.uni-paderborn.de/zv/3-3](http://www.uni-paderborn.de/zv/3-3)

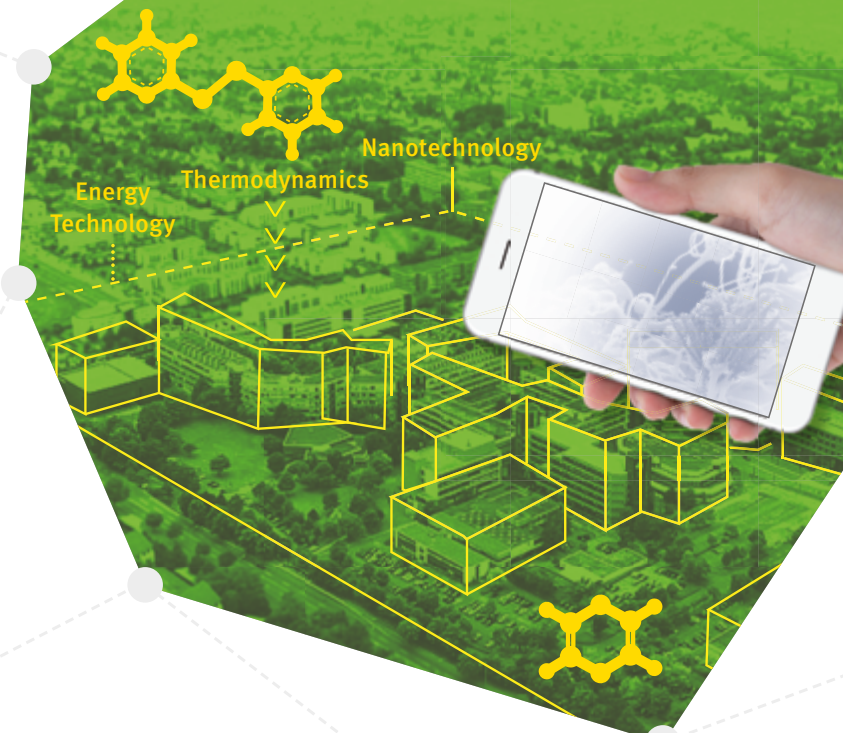
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PADERBORN UNIVERSITY

## STUDY THE FUTURE IN PADERBORN



## BACHELOR AND MASTER

# CHEMICAL ENGINEERING

## PROGRAM DESCRIPTION

The chemical engineering program consists on the one hand of required modules in order to acquire a broad foundation of knowledge and skills in engineering and the natural sciences. On the other hand there are elective modules to design your individual profile.

### FOUNDATIONAL STUDIES OF THE BACHELOR'S PROGRAM

- Mathematics/Modelling
- Programming
- Engineering Mechanics/ Material Science
- Engineering Design
- Electronics/Physics
- Thermodynamics
- Fluid Mechanics
- Thermal and Material Conduction
- General, Anorganic and Organic Chemistry
- Scientific and procedural Practica
- Control Engineering
- Physical Chemistry
- Chemical, Thermal and Mechanical Process Technology

The programs is rounded off by learning of soft skills, e.g. languages.

In the Bachelor's program you will acquire specific knowledge. These are your options for elective modules:

- 1 elective module
- Project seminar
- Bachelor's thesis

### IMPORTANT COURSES OF THE MASTER'S PROGRAM

- Numerical Analysis
- Chemical, Thermal and Mechanical Process engineering 2
- Physical Chemistry 2
- 5 elective modules
- Industrial internship
- Student research project
- Master's thesis

In the Master's program you can choose a combination of elective modules for your specialization:

- Nanotechnology
- Polymers Technology
- Process technology

## IF IT'S CHEMICAL ENGINEERING ...

As a chemical engineer, you will develop, implement, and commission production processes in which valuable products with specific, desired characteristics are created from raw materials via chemical, biological, and physical processes. During these processes, the goals of product quality, cost awareness, safety, and environmental protection must all be balanced and kept in focus. Based on your understanding of these processes, you will spend your time working with the systems, apparatuses, and machines used to produce these products. The study of chemical engineering is, therefore, an engineering degree with a focus in mechanical engineering and a strong background in the natural sciences (chemistry and physics). As a chemical engineer, you are at the intersection of several disciplines and you have any number of directions in which you can develop.

## ... THEN IT'S THE FUTURE

In a highly specialized, rapidly developing industry, there is great need for engineers who have a solid, broadly grounded education. Not in facts or specialized knowledge, which need to be renewed and expanded upon in day-to-day employment in any case; rather, what is required is knowledge of the basics and how they can be applied, in order to act, adapt, and react successfully in a rapidly changing environment. Your later professional life will almost inevitably require the ability to work in an interdisciplinary team; hence, the program is designed with an interdisciplinary focus. You will become acquainted early on with sometimes differing ways of thinking and terminology of the various disciplines in natural science and mechanical engineering.

**Process engineering is responsible for more products in your life than you think ...**

## REQUIREMENTS FOR ADMISSION

- a German general qualification for German universities (German: Abitur), or a subject-specific university qualification (fachgebundenen Hochschulreife) or
- a German qualification specifically for a university of applied sciences (Fachhochschulreife), together with certification of having completed the general education requirements of German, English (or another foreign language) and mathematics, as well as the subject-specific confirmation of suitability (fachliche Eignung) or
- a legally recognized equivalent qualification (for international certificates: please turn to the International Office at the University of Paderborn at <https://www.uni-paderborn.de/en/studium/international-office/>) or
- a professional certification which fulfills the corresponding university regulations

The **most important** requirement to successfully study chemical engineering is an interest in science and technology.

The professional activities of a chemical engineer are extremely varied; therefore, team spirit, a sense of responsibility, and the ability to get along well with others are in high demand.

## IT GOES LIKE THIS

### PRACTICUM/INTERNSHIP

Students are required to obtain at least 6 weeks of practical experience. We recommend that students complete this experience before beginning their studies if at all possible. If a student is not able to complete all 6 weeks before starting, he/she must do so in the first half of their bachelor's program. You can find more information on this in the "Practicum/Internship Regulations" (Praktikumsordnungen).

### BACHELOR'S DEGREE PROGRAM

This program is an accredited degree program at the University of Paderborn.

**Duration: 6 semesters**

**Start: Winter Semester**

### MASTER'S DEGREE PROGRAM

This program is research-oriented. It is designed to take 4 semesters and can be started after the completion of a bachelor's degree.

**Duration: 4 semesters**

**Start: Winter or Summer Semester**

### DEGREES OFFERED

- Bachelor of Science (B.Sc.)
- Master of Science (M.Sc.)
- Doctorate (Dr.-Ing.)
- Habilitation (German post-doctorate degree)

### PROFESSIONAL PROFILE

Chemical engineers are highly valued in many branches due to their broad knowledge base and education. Their fields of activity range from heavy industry to nanotechnology. Some examples include:

- (Chemical) Equipment Manufacturing
- Chemical Industry
- Petrochemical and Energy Sector
- Polymers and Processing Technology

### YOUR CHANCE

The Faculty for Mechanical Engineering conducts internationally recognized, cutting-edge research. The results from that research are then integrated directly back into academics. We will prepare you for challenging positions requiring personal responsibility.

### DIVERSE SPECIALIZATIONS

Based on the knowledge that you acquire in the first phase of your studies, you will be able to make an educated decision about which specialization you would like to pursue. Beyond that, you will also have a chance to become involved in institutes such as the Direct Manufacturing Research Center, the Heinz Nixdorf Institute, the Center for Competence in Sustainable Energy Technology, or the UPBracing Team.

### YOU ARE GERMANY'S FUTURE!

You are carrying out research and hands-on learning in fields such as:

- Germany's "Industry 4.0"
- Energy Sector
- 3D printing
- Lightweight design

These are topics that will determine your – and Germany's – future in the coming decades.

## IN THAT CASE: PADERBORN

### PADERBORN

Paderborn is located in Eastern Westphalia (Ostwestfalen). Here, at a distance from the hectic atmosphere of big cities, worldwide market leaders rub elbows with cutting-edge researchers. Well-established, forward-thinking, and innovative family business have their headquarters here. With the federally recognized cluster "Intelligent Technical Systems", OWL has firmly established itself, both domestically and internationally, as one of the top regions in Germany.